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FISH KILLS BY POLLUTION IN 1966

Federal Water Pollution Control Administration
Washington, D. C.

1967

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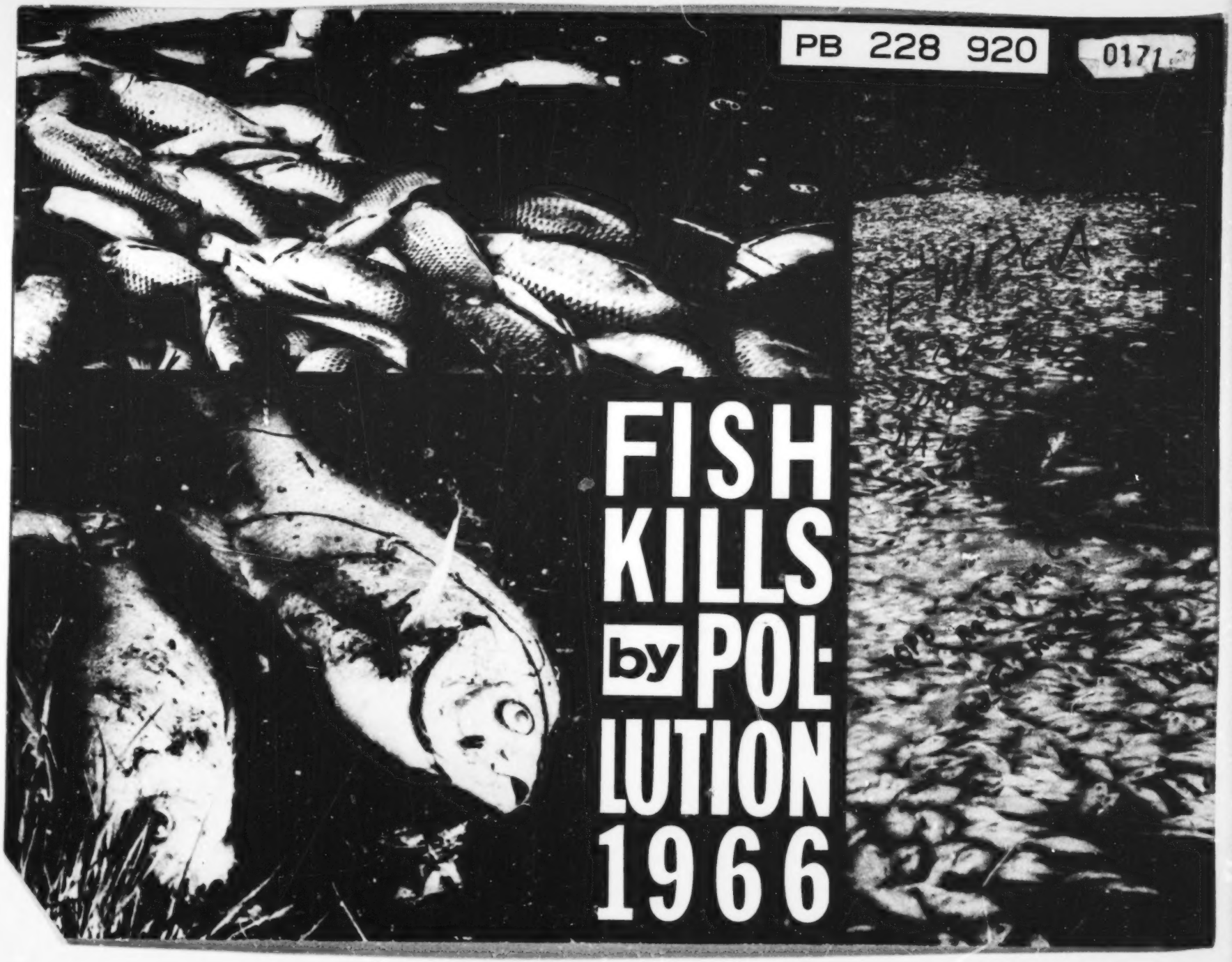


FISH KILL
POLLUTION
DAMAGE

FISH KILLS BY POLLUTION 1966

seventh annual report

FEDERAL WATER POLLUTION CONTROL ADMINISTRATION
WASHINGTON, D.C. 20242

19

FISH KILLS—1966

POLLUTION KILLS

An estimated 9,115,000 fish were reported killed by identifiable pollution sources in 46 States during 1966. There were 95 other reports of fish kills in which pollution was suspected but the source could not be definitely determined.

The total of reported kills is 2,500,000 less than in 1965 when 44 States reported kills of 11,784,000. The decline may have been actual or it may have been due to variations in reporting between the two years. The average number of fish involved in kills was greater in 1966 than in 1965.

The two worst cases of fish kills in 1966—one million each—were caused by two of the most difficult problems facing pollution control experts—mine drainage and over-enrichment of water by municipal and other wastes.

Lake Apopka in Winter Garden, Florida, receives effluents from a citrus processing plant, from the city's sewage treatment plant, and drainage from farms containing fertilizers and pesticides. Nutrients in all these wastes reduced the oxygen in the lake in July, 1966, to a level in which fish couldn't survive.

Heavy rains on the Allegheny River watershed during August, 1966, washed mine acid deposits into the river, causing the death of 1,000,000 fish near Sharpsburg, Pa. The water in the river turned a pea-green and the bottom was covered with a white film.

The annual fish kill census is gathered through the cooperation of individuals, State fish and game agencies, and water pollution groups.

9 MILLION FISH

Ideally, the program works like this:

A person spots a fish kill, and immediately reports it to the State warden, conservation, or health official in charge of the area. The State agency sends technical personnel who painstakingly track down the source and nature of the pollution causing the kill. This information is sent by the State to the Federal Water Pollution Control Administration of the Department of the Interior for correlation and publication.

INDUSTRIAL POLLUTION WORST KILLER

Industrial pollution was identified in the reports as the largest killer of fish during 1966. Fifty-three percent, or 4,622,790 fish, died from this type of pollution. Waste from cities killed 1,347,248 fish, making this type of pollution second on the most-deadly list. Agricultural operations such as drainage and the use of fertilizers were third with 1,259,599 fish killed.

The fourth specific category—transportation accidents—was responsible for the killing of 102,631 fish. Pollution by transportation results when a pipeline springs a leak, sending its oil flowing into streams, or when a railroad tank car overturns, spilling its lethal liquid into a waterway.

The remaining kills—involving a total of 1,410,569 fish—were attributed to pollution from such activities as highway and building construction, airplane washing, and the deliberate, illegal disposal of poisons in water.

The average size of fish kills increased in 1966 to 5,620 from 4,310 in the previous year. The record was set in 1963 when the average was 7,775. As in former years, the averages were derived after eliminating reports of 100,000 or more as being unrepresentative. Industrial pollution lead the averages, with 6,540. Municipal wastes were next with 5,970.

Sixteen percent, or 1,480,000 of the fish killed in 1966 were game fish. Some 3,098,000 fish of commercial value were lost by pollution.

500,000 FISH SUFFOCATE

Pollution from the manufacture and processing of food products was blamed for the death of 1,792,000 fish. One of the worst examples of this occurred on the Snake River in Idaho. Organic wastes from potato processing plants reduced the level of dissolved oxygen to below .5 per million parts of water in a seven-mile stretch above a dam, suffocating 500,000 fish.

Malfunctioning or inadequate capacity of municipal sewage-treatment plants were the most often named cause with 74 reports of fish being killed. Sixty-four of these reports which gave a definite estimate of fish killed, accounted for the death of 1,284,000.

An estimated 500,000 alewives, an edible herring-like fish, perished in the Anacostia River at Washington, D.C., when dissolved oxygen levels declined to below the survival level. A combined sanitary and storm sewer was found discharging raw sewage into the river.

Whether this was a contributing factor is not known.

When a treatment plant's blower system broke down in Danville, Ill. raw sewage ended up in the Vermillion River, killing nearly 300,000 fish.

Fattening of animals for market at feedlots has added a new problem in the control of pollution. Drainage from these feedlots caused the death of 1,041,000 fish.

FISH STARVED FOR OXYGEN

More than three-fourths of these fish—850,000—died in Kansas and on the same rivers, the Cottonwood and the Neosho. The reports told the same story over and over: The organic matter in the wastes consume the oxygen, starving the fish of the necessary element of life.

The widespread use of insecticides and poisons on farms to increase crop production resulted in the death of 217,000 fish.

Pollution in rivers and streams was responsible for death of 7,438,770 or 85 percent of the fish killed in 1966. Pollution of lakes was the next big killer with a total of 1,290,757.

The greatest number of fish kills occurred during August, but the death totals were highest during July when 2,626, 968 died as compared to 2,614,831 in August. September, March, November, and April followed in that order in total fish deaths.

SUMMER MONTHS WORST FOR POLLUTION

From past records, summer months seem to take the heaviest toll, but any month is liable to experience an unexpected surge in fish kills. Almost all of the fish killed during 1966 died in fresh water rather than in salt water or estuaries.

The average duration of lethal pollution levels during 1966 was 2.7 days. Heavy kills lasted about three-fourths of a day longer than total kills. The duration of pollution by source was led by municipal operations with an average of 4 days. Transportation pollution lasted for three days while industrial averaged 2.5 days.

Of the five States not included in the annual census, Vermont had one kill but was unable to determine the pollution source, and Utah stated there were no kills. There were no reports from Colorado, Maryland, or North Dakota.

Although the figures in the fish kill census are of great significance because they reveal the presence of deadly substances in water, they probably show only a fraction of the actual fish killed by pollution in the United States last year.

Many fish kills go unreported while others are unobserved. And of the 436 reports of fish kills in 1966, only 372 gave a definite number. The other 64 gave such totals as "many hundreds," or "thousands," or "pounds," or left the question unanswered.

HIGHLIGHTS FROM THE REPORTS

Construction company, pouring cement for pillars in river, pumped cement - laden water into river rather than settling ponds. Cement coated river bottom for approximately three-fourths of a mile downstream, killing 1,500 fish.

Two million gallons of waste containing 100 parts per million of phenols discharged into bay when heat exchanger phenolic extraction unit failed. Six thousand to 7,000 fish killed.

Petroleum products, de-greasers, and other unknown materials discharged into stream from airplane washing and maintenance operations. Heavy oil observed on the water surface at various locations. Effects extended downstream 7 miles. Game fish had been killed in this stream in 1965, so kill on this occasion (1,000 fish) represented a minimum population.

Oxidation pond containing approximately 8 to 10 acrefeet of treated domestic sewage and untreated industrial sewage overflowed and washed out bank. Entire contents went into the river. Kill extended downstream two miles. Coating on bottom of river readily visible for one mile. Reports indicate water turned black for 3 to 4 hours. 102,100 fish killed.

Twenty-one pounds of DDT per acre applied to tomato field. Field irrigated during same period. Thiodan applied by airplane on different field, same farm. Field irrigated same day. Fish kill traced in receiving waters from farm and extending about five miles west. 5,000 to 6,000 fish were killed.

Malfunction of salt company pumps pulled water out of salt ponds killing 1,000 fish.

Area continuously polluted by oil refinery waste known to be toxic and to have high bio-chemical oxygen demand. 1,000 fish killed.

Lime used by water treatment plant as a rust preventative discharged into creek. Bottom of stream covered with sediment for about ¼ mile killing 500 fish. Kill possibly due to rapid change in the alkaline-acid balance in water.

Cyanide suspected. Possibility of heavy domestic pollution due to breakdown in sewerage system. Mostly suckers and minnows. 5,000 fish killed.

Herbicide spilled accidentally into a stream by a sugar plantation, killing 100 fish.

Hot effluent and high acid balance in water from phosphate fertilizer plant killed 30,000 fish. Spawning run of suckers had commercial value as they were for human consumption and fish hatcheries. Fish died on at least three separate days.

Grain company's defective valve in liquid fertilizer tank (25 percent ammonia solution) caused loss of 20,000 gallons into stream and death of 370,700 fish.

Acid mine waste washed into the river from a creek after rains, killing 104,100 fish.

Tank car carrying benzol developed a leak in freight train derailment. 1,200 fish were killed.

Metal plant, cleaning plating tanks for disposal of sludges and solutions, lost cyanide. 300 fish killed.

Low stream flow combined with feed-lot runoff and sewer flushing during heavy railfall, lowered dissolved oxygen killing 1,200 fish.

All fish and aquatic life killed when vandalism caused loss of 1,400 gallons of liquid ammonia (37 percent nitrogen) into stream, killing 18,300 fish.

Oil and paint from automobile plant, sewage, and corn milling wastes, lowered dissolved oxygen killing 10,000 fish.

State hospital's sewage treatment plant operators applied odor control chemical with toxicity level of .5 to 1 parts per million to filter. 10,000 fish killed.

Break in a company pipeline sent oil into the stream causing 500 fish to be killed.

Four thousand gallons of caustic drained to a storage pit beneath a cleaning tank. Pumped into a storm sewer emptying into creek. 6,000 fish died.

Oxygen depletion due to decomposing manure wastes killed 100,000 fish. Field investigator's comment: "A big percent of the game fish was killed. Took a lot of big fish this time. Channel catfish made up a large part of the game fish killed."

Fish kill more damaging than most because it occurred immediately above a reservoir. Resulted in a higher-than-average percentage of the dead fish being of game species. Fifteen percent of game fish killed were walleye. Oxygen depletion, due to decomposing manure wastes, caused 300,000 fish to be killed.

Road oil used in resurfacing highway and river bridge leaked through water drain holes in bridge and escaped into stream killing 100,000 fish.

Farmer disposed of spoiled baled hay by dumping it into small stream. Oxygen deficiency from decomposing organic matter caused 2,000 fish to be killed.

Crude oil line leaking at creek crossing went undetected for several days. The 3,500 estimate of fish killed is considered to be low because it was made several days after the kill occurred. It includes only the larger fish and no minnows. Principal kill area was two mile section of stream. Oil was noticeable in approximately a five mile section.

Because of bad water conditions for swimmers, double amounts of sodium hypochlorate were applied to water near beach, killing 300 fish.

Careless handling of agricultural pesticides in filling a washing sprayer in brook caused 300 fish to be killed.

A trout-rearing pool, sterilized with benzene hexachloride, drained into creek, killing many fish. Hatchery owner fined $500. Directed to restock the stream.

A trickling filter removed from operation without provisions for alternate treatment. Low oxygen and high ammonia levels in stream caused loss of 65,000 fish.

Toxic organic material was intentionally applied to pond to poison fish. Two persons were convicted. Paid $100 fines for killing 500 fish.

Continuous pollution by rendering plant for past 6 months drove fish from stream. Heavy rains prior to kill diluted stream, allowing fish to re-enter. When water receded oxygen was depleted by large amounts of organic waste from the plant. Most fish could keep ahead of the oxygen depletion. Beaver dams trapped some and caused death of 200.

Oil storage tank was removed from school grounds. It was overturned and spilled in the hole filled with water. Mixture was pumped to storm drain leading to the stream. Toxic substances in oil caused 5,000 to 10,000 fish to be killed.

Low stream flow was caused by hydroelectric plant not releasing water for approximately 30 hours. 1,000 fish were killed.

A grader broke an oil pipeline. Oil slick covered about 90 percent of the surface. Besides 23,000 fish, other aquatic life was killed in large numbers.

Approximately 75 percent of flow from creek is used by a petroleum refining company for cooling water. Discharge from plant was 104 degrees. As it mixed with the 85-degree water in stream, temperature of the water rose to 90 to 95 degrees, killing 25,000 fish.

The suspected polluter was a paper company. At time of pollution, a tank truck of acid was used to clean a large tank. Other fish were found in distress, presumably blinded by acid. The water had a turbid and milky appearance. Bottom was heavily silted in the damage zone. 5,000 fish were killed.

A food-processing plant illegally discharged cannery wastes into stream, resulting in 1,200 fish being killed. Water was clear but buttom was covered with wastes.

Nine hundred fish were killed in a creek which originates in Army depot. The pollution was attributed to the depot. One thousand rainbow trout had just been stocked in stream. Water was muddied by construction of a dam on a creek in the depot, making it impossible to see the bottom.

Cleaning fluid was washed into the stream by an airline resulting in 100 fish being killed. Stones on the bottom of stream were covered with a white substance. Water had a milky scum with a kerosene odor.

Gas company built a dam to contain refuse from drilling on State game lands. Dam broke, resulting in 185,600 large fish being killed. All other aquatic life was killed also. Bottom was coated with a clay deposit. Silt and water appeared chocolate brown.

Potato field was sprayed with thiodan by plane in the evening and 2,400 fish were killed. The water and bottom remained unchanged in the damaged zone.

Owner of a poultry farm diverted water from his lagoon to nearby fields. On opening the lagoon with a backhoe, the fluid got away and polluted the pond. 4,600 fish were killed. Pond bottom was covered with sludge and muck. Water was very dark.

The 4,100 dead fish were not found until a thaw in February because stream had been frozen over. Leak found in a caustic tank, a lead around a sump pump, and a spill from a frozen aeration system. Other aquatic life was also killed. Water was milky and bottom had a grey deposit.

Barn was destroyed by fire. Water poured on fire, washed ashes, char, and barn wastes to stream, resulting in 3,000 fish being killed. Water appeared black and murky. Bottom was covered with silt.

Four sludge basins had been emptied to a new filter system at a manufacturing plant, and the resulting fish kill was caused by a discharge from their outfall sewer to the Gut (Tributary to river). The water was slightly turbid, bluish and milky in appearance. The bottom contained sand silt. 10,000 fish were killed.

Filter bed of city sewage disposal plant treated with a solution containing 10 percent Dieldrin. Dead larvae floated into the stream where they were eaten by the fish. Major part of fish kill caused by use of Dieldrin during drought. 10,000 fish were killed.

State Highway Department paved road with tar which washed into stream during heavy rainfall. 500 fish were killed.

Superheated water was discharged into the river by electric company, killing 50,000 fish. Temperature was over 100 F. Water appeared normal; the bottom also.

Tergitol (a sudsing agent) leaked from a trailer parked beside a stream. Surface of the water was sudsy in the polluted zone. Bottom was normal. Other aquatic life was affected also. 3,500 fish were killed.

Stone company dumped 3,500 gallons of diesel fuel into storm sewer which emptied into a stream. In addition to 101,400 fish being killed, all aquatic life was destroyed. Some ducks and varied amphibians were also killed.

MAJOR KILLS — 100,000 OR MORE

LAKE OR STREAM	NEAR OR IN	NO. KILLED	OPERATION
Lake Apopka	Winter Garden, Fla.	1,000,000	Food products
Allegheny River	Sharpsburg, Pa.	1,000,000	Mining
Valley Creek	Bessemer, Ala.	728,498	Food products
Anacostia River	District of Columbia	500,000	Sewage disposal
Snake River	Burley, Idaho	500,000	Food products
Kaskaskia River	Bondville, Illinois	370,653	Food products
Great Miami River	Butler County, Ohio	319,130	Chemical
Cottonwood and Neosho Rivers	Emporia, Kansas	300,000	Manure drainage
Cottonwood R. Neosho Trib.	Emporia, Kansas	300,000	Manure drainage
Vermilion River	Danville, Illinois	291,181	Sewage disposal
Ohio River	Louisville, Ky.	200,000	Chemicals
Big Kettle Creek	Cross Fork, Pa.	185,642	Other
Coal River-Pond Fork	Van, West Va.	180,000	Mining
Cottonwood R. Neosho Trib.	Emporia, Kansas	150,000	Manure drainage
Portage River	Ottawa County, Ohio	137,092	Other industrial
Big Muddy River	Royalton, Illinois	104,091	Mining
Kings River	Sanger, Calif.	102,134	Sewage disposal
Little Conewago Creek	Thomasville, Pa.	101,382	Petroleum
Cottonwood River	Cedar Point, Kansas	100,000	Manure drainage
Neosho R. Grand River Trib.	Emporia, Kansas	100,000	Other
Colorado River	Matagorda, Texas	100,000	Poisons

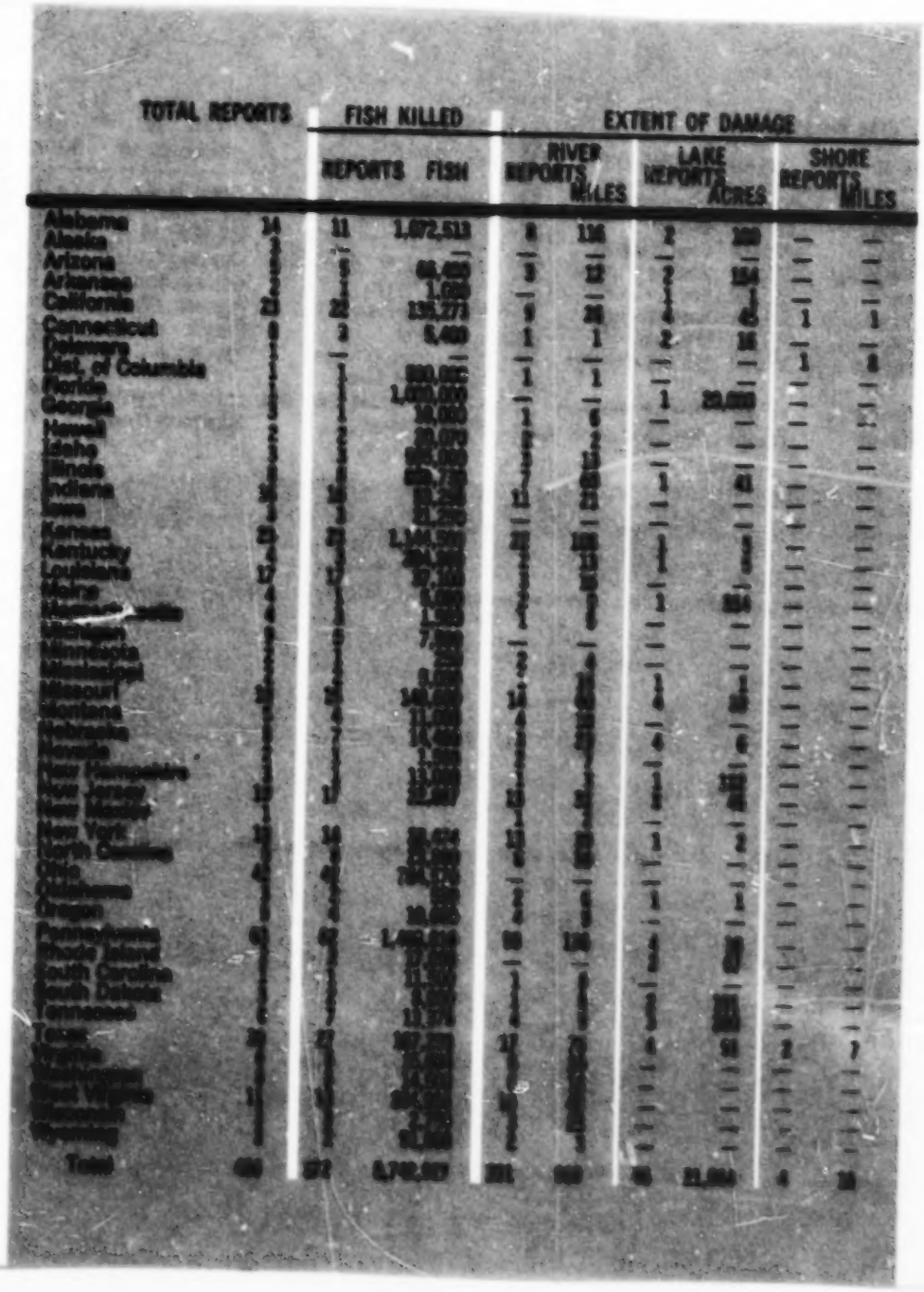
TABLE 1 — Historical summary of pollution-caused fish kills, June 1960-December 1966

June- December	1960	1961	1962	1963	1964	1965	1966
Number of States reporting	38	45	37	38	40	44	46
Number of reports	286	411	301	436	465	531	436
Reports which state number of fish killed	149	253	233	300	385	448	372
Total estimated number of fish killed	6,379,000*	15,910,000*	7,118,000*	7,980,000	18,387,000	11,764,000	9,115,000
Average size of kill**	2,926	6,536	5,710	7,775	5,490	4,310	5,820
Largest kill reported	5,000,000	5,387,000	3,180,000	2,000,000	7,887,000	3,000,000	1,000,000
Reports where extent of area affected was stated							
Rivers							
Number of reports	188	240	239	271	339	282	251
Miles of stream	1,204	1,886	1,448	2,208	1,440	1,300	989
Lakes and reservoirs							
Number of reports	25	50	25	49	57	36	46
Acres affected	1,407	5,967	2,581	5,644	12,637	4,630	21,584
Average duration of kill in days	2.95	2.64	2.59	3.18	2.44	2.57	2.71

* After adjustment for reports giving two or more causes.
** Excludes reports of 999,999 or more as being unrepresentative; this number does not exceed 25 reports in any one year.

TABLE 2

Pollution-caused fish kill summary by state



	TOTAL REPORTS	FISH KILLED		EXTENT OF DAMAGE					
		REPORTS	FISH	RIVER REPORTS	RIVER MILES	LAKE REPORTS	LAKE ACRES	SHORE REPORTS	SHORE MILES
Alabama	14	11	1,672,513	8	136	2	160	—	—
Alaska	—	—	—	—	—	—	—	—	—
Arizona	—	—	66,420	3	12	2	154	—	—
Arkansas	—	—	1,000	—	—	—	—	—	—
California	23	22	135,273	6	26	2	6	1	1
Connecticut	3	3	5,400	1	1	2	16	—	—
Delaware	—	—	—	—	—	—	—	—	—
Dist. of Columbia	—	—	200,000	1	1	—	—	1	8
Florida	—	—	1,400,000	—	—	1	20,000	—	—
Georgia	—	—	10,000	—	—	—	—	—	—
Hawaii	—	—	20,070	—	—	—	—	—	—
Idaho	—	—	200,000	—	—	—	—	—	—
Illinois	—	—	85,700	—	—	—	—	—	—
Indiana	16	16	81,200	15	21	1	21	4	11
Iowa	—	—	31,000	—	—	—	—	—	—
Kansas	23	23	1,148,500	22	155	1	1	—	—
Kentucky	17	17	304,000	16	113	1	834	—	—
Louisiana	—	—	97,100	—	—	—	—	—	—
Maine	4	4	1,000	4	7	—	—	—	—
Maryland	—	—	7,000	—	—	—	—	—	—
Massachusetts	—	—	—	—	—	—	—	—	—
Michigan	—	—	—	—	—	—	—	—	—
Minnesota	—	—	—	—	—	—	—	—	—
Mississippi	—	—	—	—	—	—	—	—	—
Missouri	16	16	146,000	15	97	1	1	—	—
Montana	—	—	11,000	—	—	—	—	—	—
Nebraska	—	—	10,000	—	—	—	—	—	—
Nevada	—	—	—	—	—	—	—	—	—
New Hampshire	—	—	11,000	—	—	—	—	—	—
New Jersey	12	12	12,000	12	15	—	—	—	—
New Mexico	—	—	—	—	—	—	—	—	—
New York	15	15	38,000	15	21	—	—	—	—
North Carolina	—	—	—	—	—	—	—	—	—
Ohio	4	4	30,000	4	4	—	—	—	—
Oklahoma	—	—	—	—	—	—	—	—	—
Oregon	—	—	10,000	—	—	—	—	—	—
Pennsylvania	61	61	1,400,000	58	176	3	450	—	—
Rhode Island	—	—	7,000	—	—	—	—	—	—
South Carolina	—	—	11,000	—	—	—	—	—	—
South Dakota	—	—	5,000	—	—	—	—	—	—
Tennessee	—	—	11,000	—	—	—	—	—	—
Texas	29	27	167,000	27	31	2	31	2	7
Virginia	—	—	15,000	—	—	—	—	—	—
Washington	—	—	10,000	—	—	—	—	—	—
West Virginia	1	1	5,000	1	1	—	—	—	—
Wisconsin	—	—	2,000	—	—	—	—	—	—
Wyoming	—	—	2,000	—	—	—	—	—	—
Total	450	372	8,748,607	331	969	16	21,884	4	28

TABLE 3 –

SOURCE OF POLLUTION
Agricultural operations
Industrial operations
Municipal operations
Transportation operations
Other operations
Total

* Averages derived after
** Includes all fish killed a
number was given.

TABLE

TYPE OF WATER
River
Lake
Bay
Total

Fish kill summary by source of pollution

TOTAL REPORTS	REPORTED KILLS REPORTS	REPORTED KILLS FISH	AVERAGE KILL*	ESTIMATED FISH KILLED** TOTAL	GAME	NON GAME	COMMERCIAL
87	79	1,259,599	4,185	1,293,000	455,000	838,000	439,000
194	160	4,622,790	6,540	4,845,000	596,000	4,249,000	1,647,000
90	79	1,347,248	5,970	1,413,000	146,000	1,267,000	480,000
27	24	102,631	4,275	116,000	30,000	86,000	39,000
38	30	1,410,569	4,630	1,448,000	253,000	1,195,000	492,000
436	372	8,742,927	5,620	9,115,000	1,480,000	7,365,000	3,098,000

ading 21 reports of 100,000 or more.
orted plus the average number killed for each source applied to those reports where no actual

Fish kill summary by type of water body

TOTAL REPORTS	FISH KILLED REPORTS	FISH KILLED FISH	EXTENT OF DAMAGE RIVER REPORTS	RIVER MILES	LAKE REPORTS	LAKE ACRES	SHORE REPORTS	SHORE MILES
363	314	7,438,770	251	989	—	—	—	—
61	51	1,290,757	—	—	44	21,530	—	—
12	7	13,400	—	—	2	34	4	16
436	372	8,742,927	251	989	46	21,564	4	16

TABLE 4 — Fish kill summary by operation

SOURCE OF POLLUTION	TOTAL REPORTS	REPORTED FISH KILLED REPORTS	REPORTED FISH KILLED FISH
Agricultural			
Insecticides,	81	44	217,406
Fertilizers	1	1	1,200
Manure-silage drainage	36	34	1,040,993
Subtotal	87	79	1,259,599
Industrial			
Mining	34	27	1,442,701
Food products	36	32	1,792,676
Paper products	11	8	12,900
Chemicals	36	28	708,815
Petroleum	22	18	154,299
Metals	12	9	8,127
Combinations	8	7	94,619
Other	35	31	405,660
Subtotal	194	160	4,622,790
Municipal			
Sewerage systems	74	64	1,284,297
Water systems	7	7	6,962
Swimming pool	4	3	1,439
Power	2	2	51,000
Other	3	3	3,550
Subtotal	90	79	1,347,248
Transportation			
Rail	6	6	12,792
Truck	11	11	65,680
Barge or boat	3	—	—
Pipeline	7	7	24,159
Subtotal	27	24	102,631
Other operations:	38	30	1,410,569
Total	436	372	8,742,927

TABLE 6 – Fish kill summary by water type

	TOTAL REPORTS	REPORTED REPORTS	FISH KILLED FISH
Fresh	416	357	8,698,657
Salt	13	9	19,000
Estuary	7	6	25,270
Total	436	372	8,742,927

TABLE 7 — Fish kill summary by month

	TOTAL REPORTS	REPORTED REPORTS	FISH KILLED FISH
January	15	12	189,072
February	8	6	16,557
March	25	20	402,234
April	34	29	643,277
May	45	37	434,230
June	57	52	309,560
July	87	76	2,626,968
August	92	82	2,614,831
September	38	31	836,240
October	9	8	21,702
November	21	17	648,767
December	5	3	3,089
Total	436	372	8,742,927

TABLE 8 — Fish kill summary by severity of kill

	TOTAL REPORTS	FISH KILLED REPORTS	FISH KILLED FISH	AVERAGE KILL
Total kill	63	55	2,184,313	6,269
Heavy kill	132	110	4,821,447	11,270
Moderate kill	82	71	428,914	1,970
Light kill	84	77	145,873	631
Not stated	75	59	862,380	6,270
Total	436	372	8,742,927	5,630

Average derived after exclusion of 21 reports of 100,000 or more.

TABLE 9 — Distribution of duration by severity
(Number of reports showing kills lasting indicated number of days)

DAYS	TOTAL REPORTS	TOTAL KILL	HEAVY KILL	MODERATE KILL	LIGHT KILL	NOT STATED
1	35	5	6	8	14	2
1	75	13	20	15	25	2
2	71	10	22	18	18	3
3	48	10	26	10	2	—
4	6	2	1	1	2	—
5	15	6	6	2	1	—
6	3	1	—	2	—	—
7	8	1	3	2	1	1
8	1	—	—	—	1	—
9	1	—	—	1	—	—
10	6	1	4	1	—	—
12	1	—	1	—	—	—
14	2	—	1	—	1	—
15	1	1	—	—	—	—
30	2	—	2	—	—	—
60	1	1	—	—	—	—
90	1	—	1	—	—	—
365	1	1	—	—	—	—
Total	278	52	93	60	65	8
Average	2.71	2.94	3.54	2.33	1.78	2.00

TABLE 10 — Frequency distribution of reported duration of critical effects

DAYS	ALL REPORTS	AGRICULTURAL	INDUSTRIAL	MUNICIPAL	TRANSPORTATION	OTHER
1	35	5	13	8	7	2
1	75	19	37	8	2	9
2	71	25	25	10	4	7
3	48	8	21	9	3	7
4	6	—	5	—	1	—
5	15	1	10	1	2	1
6	3	—	2	—	1	—
7	8	2	2	3	—	1
8	1	—	—	—	—	1
9	1	1	—	—	—	—
10	6	1	2	1	1	1
12	1	—	1	—	—	—
14	2	—	—	1	—	1
15	1	—	—	—	1	—
30	2	—	—	2	—	—
60	1	—	—	—	1	—
90	1	—	1	—	—	—
365	1	—	1	—	—	—
Total	278	62	120	43	23	30
Average	2.71	2.16	2.42	3.93	3.09	2.97

TABLE 11 — Fish kill summary by degree of severity

SOURCE OF POLLUTION	ALL RE-PORTS	TOTAL KILL	HEAVY KILL	MOD-ERATE KILL	LIGHT KILL	NOT STATED
Agricultural operations	87	10	26	17	20	14
Industrial operations	194	30	60	37	35	32
Municipal operations	90	8	29	14	17	22
Transportation operations	27	6	3	8	5	5
Other	38	9	14	6	7	2
Total	436	63	132	82	84	75
	PERCENT OF RESPONSES					
Agricultural operations	100.0	11.5	29.9	19.5	23.0	16.1
Industrial operations	100.0	15.5	30.9	19.1	18.0	16.5
Municipal operations	100.0	8.9	32.2	15.6	18.9	24.4
Transportation operations	100.0	22.2	11.1	29.7	18.5	18.5
Other	100.0	23.7	36.8	15.8	18.4	5.3
Total	100.0	14.4	30.3	18.8	19.3	17.2

REPORT OF POLLUTION CAUSED FISH KILLS

Cumulative listings of reports received as of date of listing

RIVER OR LAKE	CITY OR TOWN	DATE	CAUSE see code below	TYPE % GAME	TYPE % FORAGE	COMMERCIAL FISH LOSS (%)	ESTIMATED FISH KILLED	SEVERITY TOTAL (1)	SEVERITY HEAVY (2)	SEVERITY MODERATE (3)	SEVERITY LIGHT (4)	ESTIMATED MILES OR ACRES AFFECTED	DURATION DAY	DURATION HOUR
ALABAMA														
LAKE MARTIN	ALEXANDER CITY	6 02 66	28	1%	99%	-	70,485		2			40A	-	-
CHOCCOLOCCO CREEK	ANNISTON	3 20 66	31	89%	11%	11%	56,200		2			23M	-	-
HORSETROUGH CREEK	ASHLAND	6 23 66	31	25%	75%	2%	1,530				-	3M	-	-
VALLEY CREEK	BESSEMER	1 05 66	27	34%	66%	3%	70,201		2			60A	-	-
VALLEY CREEK	BESSEMER	7 16 66	22	5%	95%	1%	728,498		2			-	-	-
VALLEY CREEK	BESSEMER	9 22 66	22	100%	0%	-	50,000		2			-	-	-
VALLEY CREEK	BESSEMER	11 12 66	22	5%	95%	-	-		2			-	-	-
PATTON CREEK	BIRMINGHAM	5 27 66	31	6%	94%	-	5,326				-	1M	-	-
FLINT CREEK-W FK	DANVILLE	7 16 66	11	-	-	-	-				6	3M	-	-
SWAN CREEK	DECATUR	8 20 66	11	20%	80%	60%	80				4	1M	-	-
COOSA RIVER	GADSDEN	1 31 66	28	57%	43%	5%	88,644		2			56M	12	-
TOMBIGBEE RIVER	MCINTOSH	6 16 66	24	0%	100%	65%	345				4	6M	1	-
CEDAR CREEK	RUSSELLVILLE	1 09 66	21	-	-	-	-		2			-	-	-
BIG PRAIRIE CREEK	UNIONTOWN	6 08 66	31	89%	11%	11%	1,004			3		23A	-	-
ALASKA														
CORDOVA HARBOR	CORDOVA	12 17 66	43	-	-	-	-				-	-	2	-
BOSWELL BAY	MINCHENBROOK IS	5 - 66	43	-	-	-	-				-	-	-	-
PASSAGE CANAL	WHITTIER	5 29 66	43	-	-	-	-				-	-	2	-
ARIZONA														
VERDE RIVER	JEROME	4 - 66	21	10%	90%	-	100				4	1M	4	-
WOODLAND RESERVOR	PINE TOP	3 13 66	28	100%	0%	-	300			3		5A	3	-
FOOLS HOLLOW LAKE	SHOW LOW	8 - 66	31	100%	0%	-	4,500		2			149A	3	-
COLORADO R-CANAL	YUMA	8 - 66	11	35%	65%	-	55,000		2			7M	2	-
COLORADO R-DAM AR	YUMA	8 20 66	11	25%	75%	60%	6,500			3		4M	1	-
ARKANSAS														
BAYOU METO	JACKSONVILLE	12 - 66	24	0%	100%	-	-				-	-	-	-
US AIRFCE BASE LK	JACKSONVILLE	4 08 66	50	100%	0%	-	1,000		2			1A	3	-
CALIFORNIA														
LAKE TEMESCAL	BERKELEY	5 19 66	50	99%	1%	-	500		2			10A	2	-
BERKELEY AQUAT PK	BERKELEY	5 26 66	24	100%	0%	-	200			3		1A	2	-
MORRISON CREEK	CRESCENT CITY	12 29 66	11	54%	46%	-	89	1				1M	-	-
IRRIGATION CANAL	DIXON	8 23 66	11	0%	100%	-	700	1				-	-	-
TUOLUMNE RIVER	GROVELAND	2 09 66	50	25%	75%	-	1,500	1				1M	1	-
PETALUMA RIVER	HWY 101 BRIDGE	6 16 66	13	100%	0%	-	150				4	-	-	-
WHITE SLOUGH	LODI	7 24 66	31	20%	80%	-	600		2			-	-	-
NICASIO CREEK	NICASIO	4 17 66	13	100%	0%	-	2,000		2			2M	2	-
PEDRO CREEK	PACIFICA	6 05 66	30	100%	0%	-	400			3		1M	-	-
SQUAW HOLLOW CR	PLACERVILLE	7 20 66	11	-	-	-	1,500				-	-	-	-
SAN PABLO BAY	RODEO	5 25 66	25	100%	0%	-	6,500		2			1M	-	6
MORRISON CREEK	SACRAMENTO	4 14 66	50	0%	100%	-	1,000				4	7M	8	-
BURTON SLOUGH	SACRAMENTO CO	7 11 66	11	100%	0%	-	5,000				-	-	-	-
KINGS RIVER	SANGER	11 01 66	31	1%	99%	-	102,134	1				2M	1	-
SANTA ROSA CREEK	SANTA ROSA	4 15 66	31	100%	0%	-	25				4	-	-	-
TRIB DISAP SLOUGH	STOCKTON	5 06 66	11	1%	99%	-	5,500				-	5M	-	-
UNNAMED DRN DITCH	THORNTON	4 26 66	11	10%	90%	-	2,400				-	6M	-	-
PARADISE CUT	TRACY	7 04 66	11	95%	5%	-	375				-	-	-	-
RUSSIAN RIV W BR	UKIAH	5 03 66	11	100%	0%	-	-				-	-	-	-
SESLE SALT CO PD	VALLEJO	8 09 66	24	100%	0%	-	1,000		2			-	-	-
LOS ANGELES HARB	WILMINGTON	6 16 66	25	0%	100%	100%	1,000				4	4A	2	-
LOS ANGELES HARB	WILMINGTON	6 29 66	25	10%	90%	90%	2,200		2			30A	2	-
SAN GERONIMO CR	WOODACRE	5 01 66	33	100%	0%	-	500		2			1M	-	-
CONNECTICUT														
BROAD BROOK	BROAD BROOK	5 06 66	26	0%	100%	-	-		2			-	-	-
MOOSUP RIVER	PLAINFIELD	5 25 66	28	0%	100%	-	200			3		1M	-	-
MAMANASCO LAKE	RIDGEFIELD	8 19 66	33	90%	10%	-	200			3		-	-	-
SLEEPY HOLL PK PD	STAMFORD	4 12 66	50	100%	0%	-	-		2			1A	-	-
MAD RIVER	WATERBURY	7 29 66	24	-	-	-	-			3		-	-	-
MAD RIVER	WATERBURY	8 03 66	24	-	-	-	-			3		-	-	-
STILL RIVER	WINCHESTER	5 16 66	31	1%	99%	-	5,000		2			-	-	-
BARBER POND	WINDSOR	4 20 66	24	50%	50%	-	-		2			15A	-	-
DELAWARE														
DELAWARE BAY	LITTLE CREEK	4 16 66	27	0%	100%	-	-		2			8M	1	-
DISTRICT OF COLUMBIA														
ANACOSTIA RIVER	DIS OF COLUMBIA	8 23 66	31	0%	100%	100%	500,000		2			1M	1	-
FLORIDA														
LAKE APOPKA	WINTER GARDEN	7 12 66	50	10%	90%	1%	1,000,000		2			20,000A	14	-
GEORGIA														
CANDOCHEE RIVER	CLAXTON	9 16 66	22	50%	50%	-	-			3		-	-	-
OCONEE RIVER	MILLEDGEVILLE	8 - 66	31	50%	50%	-	-	1				6M	-	-
OHOOPEE RIVER	REIDSVILLE	9 06 66	27	50%	50%	-	10,000		2			-	3	-
HAWAII														
KAWAILOA STREAM	HANAMAULU	3 30 66	11	30%	70%	30%	70				4	1M	1	-
KAPALAMA CANAL	HONOLULU	9 03 66	22	1%	99%	-	20,000		2			1M	5	-
IDAHO														
SNAKE RIVER-RESVR	BURLEY	11 20 66	22	0%	100%	75%	500,000		2			7M	5	-
PORTNEUF RIVER	POCATELLO	5 27 66	24	1%	99%	90%	30,000		2			6M	4	-
TETON RIV-S FORK	REXBURG	6 07 66	22	4%	96%	-	35,000		2			2M	-	-
ILLINOIS														
KASKASKIA RIVER	BONDVILLE	4 05 66	22	1%	99%	3%	370,653		2			25M	3	-
VERMILION RIVER	DANVILLE	8 18 66	31	1%	99%	81%	291,181			3		8M	3	-
TIMBER CREEK	FUNKS GROVE	7 29 66	19	15%	85%	37%	8,786		2			3M	2	-
LITTLE BEAVER CR	POPLAR GROVE	9 03 66	22	3%	97%	56%	5,129				-	4M	-	20
ROCK RUN	ROCK CITY	5 24 66	22	0%	100%	10%	24,359		2			9M	3	-
BIG MUDDY RIVER	ROYALTON	8 23 66	21	1%	99%	1%	104,091		2			3M	3	-
MARYS RIVER	STEELVILLE	11 18 66	21	79%	21%	3%	2,366			3		8M	-	-
WESTVELT RESERVOR	WESTVELT	2 13 66	41	88%	12%	16%	1,165			3		41A	4	-
INDIANA														
CEDAR CREEK	AUBURN	7 04 66	26	0%	100%	-	300				-	-	-	-
WHITE LICK CR-E F	BRIDGEPORT	7 07 66	41	15%	85%	-	79			3		1M	-	-
MOOTS CREEK	BROOKSTON	8 18 66	31	95%	5%	-	1,200		2			-	-	-
MUSCATATUCK RIVER	BUTLERVILLE	6 26 66	31	55%	45%	-	1,811		2			-	-	-
STONEY CREEK	DURBIN	5 16 66	22	42%	58%	-	18,526	1				1M	1	-
MISSISSINEWA R.V	EATON	7 29 66	31	75%	25%	-	900			3		3M	-	-
BIG WALNUT CREEK	GREENCASTLE	8 16 66	31	40%	60%	-	1,500		2			2M	-	-
WHITE RIVER	INDIANAPOLIS	7 15 66	31	0%	100%	-	10,000				-	2M	-	-

WABASH RIVER	LOGANSPORT	8	12	66	31	40%	60%	-	10,000		2			2M	-	-
WHITE RIVER	MUNCIE	7	19	66	31	0%	100%	-	100			5		1M	-	-
WHITE LICK CR W F	PITTSBORO	3	03	66	44	99%	1%	-	500				4	4A	1	-
DEER CREEK	PUTNAMVILLE	8	27	66	50	1%	99%	-	510			5		-	-	-
LITTLE BLUE RIVER	RAYS CROSSING	7	02	66	11	50%	50%	-	-		2			3M	-	-
BUCK & CICERO CR	TIPTON	8	25	66	28	2%	98%	-	6,000		2			-	-	-
TIPPECANOE RIVER	WARSAW	8	20	66	11	80%	20%	-	2,032		2			1M	-	-
IOWA																
CEDAR RIVER	CHARLES CITY	7	22	66	24	25%	75%	-	250				4	-	-	-
DES MOINES RIVER	FARMINGTON	7	19	66	22	10%	90%	-	1,000				4	-	2	-
CEDAR CREEK	FONDA	7	01	66	42	20%	80%	-	20,000	1				-	-	-
KANSAS																
WALNUT RIVER TRIB	ARKANSAS CITY	8	21	66	44	5%	95%	10%	10,000			3		2M	10	-
FOUR MILE CR-TRIB	AUGUSTA	6	01	66	13	30%	70%	40%	500			3		2M	3	-
SOLOMON RIV-TRIB	BELOIT	8	25	66	13	95%	5%	98%	5,000			3		10M	2	-
COTTONWD RIV-TRIB	CEDAR POINT	5	20	66	13	30%	70%	50%	100,000	1				7M	2	-
COTTONWD RIV-TRIB	CEDAR POINT	7	26	66	13	25%	75%	40%	35,000	1				2M	1	12
COTTONWD RIV-TRIB	COTTONWD FALLS	4	12	66	13	5%	95%	60%	16,000			3		2M	-	10
SOUTH WALNUT CR	DIGHTON	7	23	66	13	80%	20%	30%	2,000		2			5M	3	-
ARKANSAS RIVER	DODGE CITY	8	13	66	13	30%	70%	60%	5,000		2			15A	2	-
COTTONWD&NEOSHO R	EMPORIA	3	15	66	13	40%	60%	65%	300,000	1				10M	1	-
COTTONWD RIV-TRIB	EMPORIA	8	23	66	13	25%	75%	50%	150,000	1				6M	1	12
COTTONWD RIV-TRIB	EMPORIA	9	26	66	13	40%	60%	50%	300,000	1				6M	2	*
NEOSHO RIVER-TRIB	EMPORIA	9	23	66	50	30%	70%	50%	100,000		2			5M	3	-
SPRING CREEK-TRIB	FAIRVIEW	5	17	66	13	5%	95%	50%	10,000		2			5M	3	-
SPRING CREEK-TRIB	FAIRVIEW	6	26	66	13	30%	70%	80%	10,000			3		3M	7	-
COWSKIN CREEK	HAYSVILLE	7	03	66	24	20%	80%	30%	4,000		2			3M	1	-
LIME CREEK-TRIB	HERINGTON	8	04	66	41	10%	90%	80%	1,000			3		2M	1	-
LITTLE WALNUT RIV	LEON	7	01	66	13	40%	60%	50%	2,000		2			2M	5	-
POTTAWATOMIE CR	OSAWATOMIE	9	10	66	44	75%	25%	75%	3,500		2			5M	5	-
SEIDEL LK & TRIB	PRATT	7	21	66	13	80%	20%	80%	59,500		2			5A	3	-
COTTONWD RIV-TRIB	SAFFORDVILLE	7	28	66	13	20%	80%	40%	20,000		2			3M	1	12
NORTH WEA CREEK	SOMERSET	5	31	66	44	20%	80%	50%	8,000	1				3M	6	-
SALINE RIVER-TRIB	TESCOTT	7	10	66	22	0%	100%	-	1,000			3		1M	-	2
BIG CREEK	YOCEMENTO	8	08	66	13	5%	95%	5%	2,000			3		2M	1	-
KENTUCKY																
FALMOUTH LAKE	FALMOUTH	7	05	66	34	15%	85%	-	300				4	5A	1	-
OHIO RIVER	LOUISVILLE	8	13	66	24	-	-	-	200,000		2			10M	1	-
HORSE & GOOSE CRS	MANCHESTER	7	29	66	21	10%	90%	-	4,500		2			-	-	-
COLLINS FORK	MANCHESTER	8	12	66	21	10%	90%	-	-		2			5M	2	-
LOUISIANA																
PETIT GR CAILLOU	CHAUVIN	8	10	66	11	90%	10%	-	1,500			3		-	2	-
BAYOU FRANCOIS	GONZALES	8	22	66	24	30%	70%	30%	15,000	1				-	2	-
BAYOU TECHE	HENDERSON	8	06	66	11	10%	90%	-	250				4	-	2	-
BAYOU BLACK	HOUMA	7	20	66	11	90%	10%	20%	300				4	-	2	-
BAYOU BLACK	HOUMA	7	24	66	11	90%	10%	25%	1,500			3		-	2	-
BLACK BAYOU	HOUMA	8	17	66	11	85%	15%	-	500				4	-	2	-
BAYOU TERREBONNE	HOUMA	8	10	66	11	95%	5%	-	300				4	-	2	-
BLACK BAYOU	LAKE CHARLES	5	10	66	11	80%	20%	-	4,000		2			-	2	-
BAYOU LAFOURCHE	LOCKPORT	11	20	66	27	5%	95%	25%	5,000		2			11M	3	-
GHEENS CO CANAL	LOCKPORT	8	11	66	11	50%	50%	-	150				4	-	2	-
SIX MILE LAKE	MORGAN CITY	7	09	66	11	90%	10%	-	2,500		2			-	-	-
CANCIENNE CANAL	NAPOLEONVILLE	9	16	66	11	95%	5%	-	100				4	-	1	-
BAYOU PLAQUEMINE	PLAQUEMINE	8	02	66	11	50%	50%	10%	750			3		-	-	-
MISSISSIPPI RIVER	ST FRANCISVILLE	11	10	66	23	30%	70%	40%	1,000			3		2M	2	-
BAYOU BRAUD	ST GABRIEL	11	05	66	24	40%	60%	30%	3,000		2			3M	1	-
OUTFALL CANAL	THIBODAUX	8	02	66	11	80%	20%	-	1,000			3		-	2	-
ZIMMERMAN LAKE	ZIMMERMAN	2	02	66	11	10%	90%	-	250			3		-	2	-
MAINE																
RIVIERE DES CHUTE	EASTOR	8	04	66	11	75%	25%	-	5,000	1				4M	1	-
WORTHLEY POND	PERU	6	20	66	50	25%	75%	-	-		2			334A	10	-
HALFMOON STREAM	THORNDIKE	8	07	66	11	-	-	-	-		2			-	7	-
PENOBSCOT RIVER	WINTERPORT	6	19	66	23	50%	50%	-	-		2			5M	-	12
MASSACHUSETTS																
LEESVILLE POND	AUBURN	3	21	66	26	10%	90%	-	-		2			-	-	-
MILL POND	LITTLETON	3	01	66	22	85%	15%	-	200			3		-	-	-
CHARLES RIVER	NEWTON-UPPR FLS	6	-	66	31	10%	90%	-	300				4	-	-	-
NASHUA RIVER	PEPPERELL	3	09	66	23	0%	100%	-	1,000		2			5M	1	-
MICHIGAN																
KALAMAZOO RIVER	BATTLE CREEK	9	24	66	31	-	-	-	6,000				-	-	-	-
COLD CREEK	BEULAH	8	31	66	22	-	-	-	-				-	-	-	-
ECORSE CREEK	ECORSE	7	01	66	31	0%	100%	-	-				-	-	-	-
GRAND RIVER	GRAND RAPIDS	8	09	66	31	-	-	-	1,100				-	-	-	-
WELCH CREEK	IRONWOOD TWP	6	25	66	31	100%	0%	-	125				4	-	-	-
GRAND RIVER	LANSING	9	23	66	31	0%	100%	-	-				-	-	-	-
ECORSE CREEK	LINCOLN PARK	6	09	66	31	0%	100%	-	-				-	-	-	-
RAISIN RIVER	MANCHESTER	8	03	66	28	-	-	-	24				4	-	-	-
RUSH CREEK	WYOMING	6	21	66	33	-	-	-	350				-	-	-	-
MINNESOTA																
CENTER CREEK	FAIRMONT	8	16	66	31	-	-	-	-				-	3M	7	-
ZUMBRO RIV-NO BR	KENYON	7	15	66	13	0%	100%	-	250				4	1M	-	-
MISSISSIPPI																
SUNFLOWER RIVER	DODDSVILLE	8	28	66	50	25%	75%	-	5,000		2			15M	3	-
FARM POND	EDWARDS	8	13	66	50	100%	0%	-	30			3		1A	1	-
MYALOBUSHA RIVER	GRENADA	7	20	66	28	50%	50%	-	2,000			3		-	1	-
MISSOURI																
CEDAR CREEK	ASHLAND	6	12	66	21	20%	80%	-	4,000		2			20M	5	-
DRAINAGE DITCH	BERNIE	9	01	66	11	40%	60%	-	50				4	2M	-	-
PINEY RIVER	CABOOL	7	09	66	22	10%	90%	-	1,800		2			1M	1	-
CENTER CREEK	CARTHAGE	7	12	66	24	5%	95%	-	1,500			3		2M	3	-
FLAT CREEK	CASSVILLE	7	29	66	50	-	-	-	-		2			5M	1	-
PERCHE CREEK	COLUMBIA	6	30	66	31	15%	85%	-	5,000		2			4M	2	-
DITCH NO 1	ESSEX	8	27	66	11	50%	50%	-	200				4	1M	1	-
STINSON CREEK	FULTON	9	16	66	31	1%	99%	-	60,000		2			5M	10	-
SEQUIOTA CREEK	GALLOWAY	4	08	66	24	10%	90%	-	1,000		2			1M	1	-
LICK FORK CREEK	HARRISBURG	10	14	66	21	5%	95%	-	3,000		2			1M	2	-
PERCHE CREEK	HARRISBURG	10	14	66	21	5%	95%	-	7,000		2			2M	2	-
SWOPE PARK LAKE	KANSAS CITY	11	19	66	50	50%	50%	-	-				4	7A	2	-
SHOOP POND	MILAN	8	05	66	50	100%	0%	-	250	1				1A	7	-
OLD MINES CREEK	POTOSI	8	05	66	21	-	-	-	-		2			5M	10	-
FALLERT POND	RIVER AUX VASES	7	15	66	13	100%	0%	-	300		2			1A	3	-
SPRING CREEK	SALEM	8	15	66	31	25%	75%	-	2,500		2			1M	7	-
JAMES RIVER	SPRINGFIELD	7	16	66	31	15%	85%	-	50,000		2			10M	2	-
TEAMSTERS LAKE	TEVELY	6	15	66	50	95%	5%	-	7,000			3		30A	2	-

* RECEIVED TOO LATE TO BE INCLUDED IN SUMMARY DATA

OPERATIONS CODES (CAUSE)
10 Agricultural Operations, 11 Poisons (Herbicides, Pesticides, etc.) 12 Fertilizers, 13 Manure, Silo, Feedlot Drainage, etc.; 20 **Industrial Operations,** 21 Mining, 22 Food & Kindred Products, 23 Paper & Allied Products, 24 Chemicals, 25 Petroleum, 26 Metals, 27 Combinations, 28 Other; **30 Municipal Operations,** 31 Sewerage System, 32 Refuse Disposal, 33 Water System, 34 Swimming Pool, 35 Power; **40 Transportation Operations,** 41 Rail, 42 Truck, 43 Barge or Boat, 44 Pipe Line; **50 Other Operations;** 90 Unknown (See table page 16)

REPORT OF POLLUTION CAUSED FISH KILLS

Cumulative listings of reports received as of date of listing

RIVER OR LAKE	CITY OR TOWN	DATE	CAUSE see code pg. 13	TYPE % GAME	TYPE % FORAGE	COMMERCIAL FISH LOSS ($)	ESTIMATED FISH KILLED	SEVERITY (1) TOTAL	SEVERITY (2) HEAVY	SEVERITY (3) MODERATE	SEVERITY (4) LIGHT	ESTIMATED MILES OR ACRES AFFECTED	DURATION DAY	DURATION HOUR
MONTANA														
PRICKLEY PEAR CR	EAST HELENA	9 26 66	26	-	-	-	1,000	1				1M	3	-
RUNNING WOLF CR	STANFORD	1 18 66	11	60%	40%	-	5,000	1				4M	1	-
SIXTEEN MILE CR	W SULPHUR SPRGS	6 - 66	41	75%	25%	-	2,000	1				3M	60	-
ELK SPRINGS CREEK	W YELLOWSTONE	7 - 66	50	75%	25%	-	-		2			-	-	-
RED ROCK RIVER	W YELLOWSTONE	7 - 66	50	75%	25%	-	3,000		2			-	-	-
NEBRASKA														
INDIAN CREEK	BEATRICE	8 25 66	42	25%	75%	-	10,000	1				3M	3	-
PERCY MINARY POND	CULBERTSON	7 29 66	13	100%	0%	-	-		2			-	1	-
FARQUHAR FARM PD	GUIDE ROCK	7 30 66	13	100%	0%	-	30				4	2A	3	-
SILVER CREEK	ITHACA	7 20 66	22	10%	90%	-	200			3		10A	2	-
L STUCKEY FARM PD	LEXINGTON	5 01 66	12	100%	0%	-	1,200		2			2A	10	-
R HONGSMEIER POND	PHILLIPS	8 16 66	13	0%	100%	-	50				4	1A	2	-
BEAVER CREEK	YORK	5 21 66	22	50%	50%	-	2,500	1				10A	5	-
C OPITZ FARM POND	YORK	7 10 66	13	100%	0%	-	500		2			1A	1	-
NEVADA														
MILL CR-OWYHEE R	MOUNTAIN CITY	11 21 66	21	-	-	-	-	1				6M	-	3
TRUCKEE RIVER	RENO	8 22 66	26	30%	70%	-	1,500			3		1M	-	4
NEW HAMPSHIRE														
CONTOOCOOK RIVER	JAFFREY	8 31 66	31	0%	100%	-	13,000				4	3M	-	12
CONNECTICUT RIVER	LANCASTER	8 08 66	23	0%	100%	-	-				4	-	-	-
KEZAR LAKE	SUTTON	7 01 66	50	1%	99%	-	-		2			182A	3	-
NEW JERSEY														
HADDON LAKE	AUDUBON	1 01 66	31	0%	100%	-	500		2			5A	2	-
DELAWARE RIVER	BELVIDERE	6 01 66	29	20%	80%	-	50				4	-	-	-
RACCOON CREEK	BRIDGEPORT	4 17 66	50	0%	100%	-	25				4	8M	1	8
WOODCREST CREEK	CHERRY HILL	8 18 66	11	0%	100%	-	1,000		2			1M	5	-
SUCKER BROOK	COLONIA	7 23 66	50	10%	90%	-	1,000		2			4M	-	-
IONA LAKE	FRANKLINVILLE	4 20 66	50	95%	5%	-	100				-	2A	1	12
DELAWARE RIVER	GIBBSTOWN	8 30 66	24	60%	40%	-	2,322		2			1M	2	-
SPOTSWOOD LAKE	HELMETTA	8 04 66	22	10%	90%	-	10,000	1				30A	2	-
MEATHCOATES BROOK	KINGSTON	7 05 66	31	10%	99%	-	1,000			3		5M	-	-
SAND RUN	LAWRENCE SOUTH	5 05 66	11	10%	90%	-	2,000	1				6M	2	-
MANTUA CREEK	MANTUA	3 12 66	31	0%	100%	-	-			3		2M	-	12
WASHINGTN VLLY BR	MORRISTOWN	7 14 66	50	20%	80%	-	1,500	1				1M	1	-
PAULINSKILL RIVER	NEWTON	9 01 66	31	10%	90%	-	100			3		1M	1	-
POHATCONG CREEK	OXFORD	6 15 66	42	0%	100%	-	50				4	1M	-	1
DOUGHTYS BROOK	PISCATAWAY	6 06 66	24	10%	90%	-	40				4	1M	1	2
DOUGHTYS BROOK	P SCATAWAY	9 11 66	24	0%	100%	-	-				4	-	-	-
CHAMBERS BROOK	PLUCKEMIN	9 10 66	31	0%	100%	-	10				4	2M	-	-
GOLD RUN	TRENTON	11 07 66	28	0%	100%	-	100				4	1A	2	-
PACKANACK LAKE	WAYNE	6 29 66	11	3%	97%	-	3,100		2			-	1	-
NEW MEXICO														
RED RIVER	QUESTA	1 24 66	21	100%	0%	-	-		2			2M	-	-
NEW YORK														
SAW MILL RIVER	ARDSLEY	7 26 66	50	0%	100%	-	750				4	1M	-	-
GOLDEN HILL CREEK	BARKER	7 11 66	22	0%	100%	-	3,000		2			6M	-	-
CANAJOHARIE CREEK	CANAJOHARIE	6 09 66	22	-	-	-	-			3		-	-	-
WHITNEY HOLLOW BR	CHERRYPLAIN	6 24 66	11	90%	10%	-	1,000		2			1M	-	-
SAUQUOIT CREEK	CLAYVILLE	11 27 66	23	5%	95%	-	3,000	1				8M	-	12
COBLESKILL CREEK	COBLESKILL	8 16 66	25	0%	100%	-	1,000		2			1M	-	-
BIG STREAM	DUNDEE	9 19 66	31	-	-	-	-	1				1M	-	-
WEST CREEK	HAMLIN	10 07 66	22	10%	90%	-	7,500		2			5M	-	-
RAMAPO RIVER	HARRIMAN	5 19 66	24	5%	95%	-	-			3		4M	-	-
CHADAKOIN RIVER	JAMESTOWN	6 06 66	26	10%	90%	-	3,000		2			-	-	-
MINESCEONGO CREEK	LETCHWORTH VLLG	5 25 66	35	2%	98%	-	1,000				4	3M	-	-
SPROUT CR-TRIB PD	LOWALA	6 10 66	11	0%	100%	-	250		2			2A	2	-
BERGHOLZ LAKE	NEW ROCHELLE	6 27 66	30	0%	100%	-	150				4	-	-	-
BULL CREEK	PENDLETON	5 20 66	50	5%	95%	-	7,500		2			5M	2	-
COEYMANS CREEK	RAVENA	8 30 66	28	0%	100%	-	-	1				2M	-	-
RED CREEK	RED CREEK	8 05 66	22	0%	100%	-	24		2			1M	-	-
SENECA RIVER	WATERLOO	9 13 66	31	0%	100%	-	100	1				1M	-	-
CRANE POND	WHITE PLAINS	5 07 66	11	0%	100%	-	200		2			-	1	-
NORTH CAROLINA														
SWANNANOA RIVER	ASHEVILLE	8 19 66	26	5%	95%	-	100				4	2M	1	-
SWIFT CREEK	CLAYTON	11 08 66	44	21%	79%	-	500			3		3M	3	-
SOUTH YADKIN RIV	COOLEEMEE	7 12 66	28	1%	99%	-	500				4	5M	1	-
ENO RIVER	HILLSBORO	9 27 66	42	42%	58%	-	10,750	1				20M	15	-
SPRING CREEK	HOT SPRINGS	5 07 66	42	0%	100%	-	750				4	1M	-	4
CANE CREEK	MURPHY	4 29 66	42	3%	97%	-	200				4	1M	-	12
TUCKASEGEE RIVER	SYLVA	7 26 66	23	20%	80%	-	1,000				4	5M	1	-
SHELTON LAUREL CR	WHITE ROCK	7 21 66	42	10%	90%	-	10,000			3		2M	-	12
OHIO														
PLUM CREEK	ALLEN CO	9 03 66	24	-	-	-	7,652				-	-	-	-
LOST CREEK	ALLEN CO	8 01 66	25	-	-	-	124				-	-	-	-
CAPTINA CREEK	BELMONT CO	8 11 66	21	-	-	-	19,991				-	-	-	-
FOUR MILE CREEK	BUTLER CO	9 18 66	31	-	-	-	322				-	-	-	-
GREATER MIAMI RIV	BUTLER CO	4 11 66	27	-	-	-	2,354				-	-	-	-
GREATER MIAMI RIV	BUTLER CO	7 25 66	24	-	-	-	319,130				-	-	-	-
RILEYS CREEK	CARROLL CO	9 13 66	21	-	-	-	84				-	-	-	-
MAD RIVER	CLARK CO	4 08 66	31	-	-	-	49,698				-	-	-	-
L MIAMI R-EAST FK	CLERMONT CO	9 19 66	31	-	-	-	160				-	-	-	-
ANDERSON FORK	CLINTON CO	7 31 66	13	-	-	-	1,102				-	-	-	-
ANDERSON FORK	CLINTON CO	9 07 66	13	-	-	-	839				-	-	-	-
MILL CREEK	COSHOCTON CO	8 21 66	21	-	-	-	3,061				-	-	-	-
PIPE CREEK	ERIE CO	10 24 66	13	-	-	-	2				-	-	-	-
HUNTER RUN	FAIRFIELD CO	8 03 66	26	-	-	-	2,870				-	-	-	-
PAINT CREEK	FAYETTE CO	7 07 66	31	-	-	-	283				-	-	-	-
BIG WALNUT CREEK	FRANKLIN CO	7 05 66	31	-	-	-	1,479				-	-	-	-
SCIOTO RIVER	HARDIN CO	6 28 66	31	-	-	-	2,000				-	-	-	-
CENTER RUN	KNOX CO	6 08 66	22	-	-	-	105				-	-	-	-
LICKING RIVER	LICKING CO	7 01 66	24	-	-	-	80,346				-	-	-	-
LICKING RIVER	LICKING CO	8 10 66	24	-	-	-	26,564				-	-	-	-
GREATER MIAMI RIV	LOGAN CO	2 08 66	41	-	-	-	7,548				-	-	-	-
EAST BR BLACK RIV	MEDINA CO	6 08 66	13	-	-	-	342				-	-	-	-
MALLET CREEK	MEDINA CO	7 04 66	13	-	-	-	822				-	-	-	-
GREATER MIAMI RIV	MIAMI CO	9 04 66	31	-	-	-	138				-	-	-	-

	MUNRO BASIN	MUSKINGUM CO	4	12	66	21	-	-	-	11,346			-	-	-	-	
	MUSKINGUM RIVER	MUSKINGUM CO	9	22	66	21	-	-	-	20,860			-	-	-	-	
	WEST BR WOLF CR	MORGAN CO	3	14	66	25	-	-	-	7,352			-	-	-	-	
	SANDUSKY RIVER	OTTAWA CO	4	18	66	27	-	-	-	7			-	-	-	-	
	PORTAGE RIVER	OTTAWA CO	4	22	66	28	-	-	-	137,092			-	-	-	-	
	SEVEN MILE CREEK	PREBLE CO	2	07	66	31	-	-	-	84			-	-	-	-	
	BEAR RUN	RICHLAND CO	9	11	66	13	-	-	-	23			-	-	-	-	
	ROCKY FORK-TRIB	RICHLAND CO	8	29	66	25	-	-	-	7			-	-	-	-	
	SANDUSKY RIVER	SANDUSKY CO	1	31	66	22	-	-	-	698			-	-	-	-	
	MUDDY CREEK-TRIB	SENECA CO	11	16	66	26	-	-	-	48			-	-	-	-	
	ROCK CREEK	SENECA CO	8	27	66	34	-	-	-	227			-	-	-	-	
	WEST BR WOLF CR	SENECA CO	8	15	66	26	-	-	-	1,406			-	-	-	-	
	WEST BR WOLF CR	SENECA CO	9	17	66	26	-	-	-	503			-	-	-	-	
	TUSCARAWAS R-TRIB	STARK CO	9	08	66	25	-	-	-	5,977			-	-	-	-	
	MAHONING RIVER	TRUMBELL CO	5	12	66	24	-	-	-	501			-	-	-	-	
	SUGAR CREEK	TUSCARAWAS CO	8	31	66	21	-	-	-	50,680			-	-	-	-	
	TOWN CREEK	VAN WERT CO	2	08	66	31	-	-	-	8,010			-	-	-	-	
OKLAHOMA																	
	UNNAMED FARM POND	DUNCAN	3	20	66	11	100%	0%	-	180		3		1A	7	-	
	GUAPAW CREEK	MEEKER	5	-	66	31	0%	100%	-	350	1			1M	-	-	
	CIMARRON RIVER	OILTON	3	01	66	29	-	-	-	-			4	9M	1	-	
OREGON																	
	PHILLIPS CREEK	ELGIN	6	07	66	28	90%	10%	-	5,000	1			2M	4	-	
	WHISKEY CREEK	HOOD RIVER	7	22	66	50	90%	10%	-	3,000	1			1M	-	12	
	AUGUR CREEK	LAKEVIEW	9	30	66	21	100%	0%	-	-	1			4M	3	12	
	GERIGS POND	ODELL	6	14	66	11	100%	0%	-	1,600		2		-	-	12	
	UMATILLA RIVER	PENDLETON	7	28	66	28	1%	99%	-	10,000	1			2M	1	-	
PENNSYLVANIA																	
	BARSHINGERS CREEK	ADAMSVILLE	11	11	66	22	40%	60%	-	252			4	1M	-	12	
	WATERING RUN	ALBERT	4	08	66	28	50%	50%	-	180			4	1M	9	-	
	TROUT CREEK	ALLENTOWN	6	04	66	22	30%	70%	-	1,500	1			1M	1	-	
	OPOSSUM CREEK	ASPERS	7	15	66	22	50%	50%	-	1,000			3	2M	3	-	
	PIGEON CREEK	BENTLEYVILLE	7	24	66	21	15%	85%	-	1,500		2		9M	9	-	
	SPRUCE RUN	BLOOMSBURG	4	25	66	50	35%	65%	-	23,000		2		-	3	-	
	TURKEYHANT CREEK	BRADFORD	8	29	66	25	15%	85%	-	25,000		2		2M	9	-	
	WHETSTONE BRANCH	BROCKWAY	4	11	66	33	100%	0%	-	12			4	1M	-	12	
	BRODHEADS CREEK	CANADENSIS	7	27	66	50	50%	50%	-	252			4	1M	1	-	
	BALD EAGLE CREEK	CASTENEA	7	08	66	23	40%	60%	-	9,000		2		1M	-	12	
	ROCKY SPRINGS CR	CHAMBERSBURG	5	11	66	28	90%	10%	-	850			3	2M	1	-	
	ROCKY SPRINGS CR	CHAMBERSBURG	6	12	66	28	100%	0%	-	600	1			2M	-	12	
	CONOCOCHEAGUE CR	CHAMBERSBURG	7	13	66	31	40%	60%	-	8,045		2		6M	2	-	
	CONOCOCHEAGUE CR	CHAMBERSBURG	7	29	66	22	40%	60%	-	1,230			3	2M	2	-	
	LITTLE CHIQUES CR	COLUMBIA	8	05	66	31	30%	70%	-	477			4	2M	2	-	
	S BR SAUCON CR	COOPERSBURG	6	15	66	31	30%	70%	-	500	1			1M	2	-	
	MONTOUR RUN	CORAOPOLIS	5	26	66	50	0%	100%	-	100			4	1M	-	12	
	SO BR FRENCH CR	CORRY	3	22	66	42	20%	80%	-	9,802		2		1M	2	-	
	BIG KETTLE CREEK	CROSS FORK	9	04	66	50	50%	50%	-	185,642	1			18M	3	-	
	W BR SUSQUEHANNA	CURWENSVILLE	8	04	66	28	55%	45%	-	9,000			3	1M	2	-	
	HOWELLS RUN	EBENSBURG	3	21	66	41	80%	20%	-	1,080			3	1M	5	-	
	CONDY CREEK	ELIZABETHTOWN	8	13	66	31	15%	85%	-	6,000		2		4M	5	-	
	MIDDLE CREEK	FAIRFIELD	5	2-	66	11	90%	10%	-	20			4	1M	-	6	
	MCCLINTOCK RUN	FORT HILL	4	09	66	21	100%	0%	-	750		2		3M	1	-	
	WOODCOCK CREEK	FOUNTN MSE CRNR	7	16	66	11	2%	98%	-	2,360		2		1M	2	-	
	ALLEGHENY RIVER	FRANKLIN	3	02	66	24	50%	50%	-	180			4	1M	-	12	
	CONOQUENESSING CR	FRISCO	8	05	66	11	40%	60%	-	1,800			3	3M	-	-	
	GALILEE POND	GALILEE	7	23	66	13	50%	50%	-	4,597		2		6A	3	-	
	PINE CREEK	GLENSHAW	7	22	66	28	10%	90%	-	3,075	1			3M	2	-	
	E B CONOCOCHEAGUE	GREENCASTLE	8	20	66	31	55%	45%	-	995			3	2M	3	-	
	TOWANDA CREEK	GROVER	1	22	66	22	10%	90%	-	4,125	1			2M	-	-	
	W BR SUSQUEHANNA	HALLS STATION	6	28	66	28	45%	55%	-	19,000		2		3M	3	-	
	L CONOQUENESSING	HARMONY	9	08	66	21	70%	30%	-	500			4	2M	2	-	
	JUNIATA RIVER-BR	HOPEWELL	6	29	66	21	65%	35%	-	2,000	1			1M	5	-	
	BERNHART LK-POND	HYDE PK-READING	9	28	66	22	50%	50%	-	490			4	1A	1	-	
	ELK CREEK	LAKE CITY	8	29	66	31	40%	60%	-	10,000		2		1M	5	-	
	LAKEWOOD DAM	LAKEWOOD	8	09	66	33	15%	85%	-	400			4	9A	2	12	
	LITTLE CONESTOGA	LANCASTER	7	29	66	50	10%	90%	-	3,000			3	6M	2	-	
	LOYALHANNA CREEK	LATROBE	8	09	66	24	50%	50%	-	785			3	1M	2	-	
	LOYALHANNA CREEK	LATROBE	9	12	66	24	50%	50%	-	1,325			3	1M	5	-	
	DECKER RUN	LIGONIER	8	02	66	13	25%	75%	-	1,000			3	2M	9	-	
	TRIB HENDRICKS RN	LIGONIER	8	22	66	50	0%	100%	-	900			4	1M	1	-	
	BALD EAGLE CREEK	LOCK HAVEN	8	30	66	23	50%	50%	-	1,500			3	1M	-	6	
	CHICKIES CREEK	MANHEIM	6	24	66	31	35%	65%	-	1,891		2		1M	2	-	
	LITTLE FISHING CR	MILLVILLE	9	18	66	31	0%	100%	-	750			3	1M	-	6	
	BREAKNECK CREEK	MYOMA	9	05	66	27	35%	65%	-	1,064			3	2M	2	-	
	OHIO RIVER	NEVILLE ISLAND	10	03	66	25	5%	95%	-	300			4	1M	1	-	
	SO BR CODORUS CR	NEW FREEDOM	1	15	66	28	20%	80%	-	1,000			3	1M	9	-	
	SO BR CODORUS CR	NEW FREEDOM	10	-	66	22	5%	95%	-	3,500			3	1M	1	-	
	SCHUYLKILL RIVER	PHILADELPHIA	9	02	66	35	25%	75%	-	50,000		2		3M	7	-	
	SCHUYLKILL RIVER	READING	8	-	66	30	45%	55%	-	3,000			3	3M	1	-	
	ELK CREEK	RIDGWAY	2	07	66	24	-	-	-	-			3	1M	1	-	
	MOHANNON CR-TRIB	SCHUYLKILL HAVN	11	02	66	22	0%	100%	-	200			4	1M	5	-	
	STONY CREEK	SHANKSVILLE	5	02	66	21	50%	50%	-	57			4	2M	1	12	
	DARBY CREEK	SHARON HILL	8	24	66	28	0%	100%	-	200			4	1M	1	12	
	ALLEGHENY RIVER	SHARPSBURG	8	19	66	21	10%	90%	-	1,000,000	1			3M	5	-	
	UNAMI CREEK	STEINSBERG	7	22	66	11	70%	30%	-	200			4	1M	1	-	
	BLUNDERS RUN-TRIB	TANNERSVILLE	11	02	66	42	35%	65%	-	3,487		2		1M	-	6	
	LITTLE CONEWAGO C	THOMASVILLE	6	27	66	25	60%	40%	-	181,382	1			9M	10	-	
	BALD EAGLE CREEK	TYRONE	10	23	66	23	0%	100%	-	250			4	1M	-	12	
	ALLEGHENY RIVER	WARREN	6	10	66	28	25%	75%	-	1,040	1			1M	5	-	
	TRIB MTN CR-POND	WERNERSVILLE	1	21	66	31	0%	100%	-	54			4	2A	2	-	
	COWANESQUE RIVER	WESTFIELD	6	11	66	28	20%	80%	-	1,200			3	1M	6	-	
RHODE ISLAND																	
	VALLEY FALLS POND	CENTRAL FALLS	3	18	66	27	1%	99%	-	5,000		2		48A	-	-	
	SPRING GREEN POND	WARWICK	8	01	66	28	15%	85%	-	12,000	1			27A	3	-	
SOUTH CAROLINA																	
	WILSON CREEK	GREENWOOD	6	26	66	31	50%	50%	-	11,500	1			8M	5	-	
SOUTH DAKOTA																	
	LAKE HANSON	ALEXANDRIA	5	-	66	31	75%	25%	-	-		2		61A	30	-	
	STOCKADE LAKE	CUSTER	7	-	66	31	100%	0%	-	5,000		2		139A	30	-	
	BATTLE CREEK	KEYSTONE	6	-	66	21	90%	10%	-	3,000	1			3M	365	-	
TENNESSEE																	
	WACONDA BAY	CHATTANOOGA	3	02	66	24	1%	99%	-	7,000			3	30A	6	-	
	WACONDA BAY	CHATTANOOGA	4	09	66	24	15%	85%	12%	2,075			4	30A	1	-	
	WACONDA BAY	CHATTANOOGA	6	23	66	24	11%	89%	5%	600			4	100A	2	-	
	COAHULLA CREEK	CLEVELAND	4	04	66	42	6%	94%	2%	200			-	2M	-	2	
	KY LK-TAILWATERS	COURCE	4	28	66	23	5%	95%	-	150			4	1M	1	-	
	EMORY RIVER	HARRINAN	1	03	66	23	-	-	-	-			4	-	-	-	
	BRUSH CREEK	JOHNSON CITY	1	01	66	28	0%	100%	-	350		3		1M	1	12	
	MISSISSIPPI RIVER	MEMPHIS	5	19	66	28	0%	100%	16%	9,000		3		5M	2	-	
TEXAS																	
	LYTLE CREEK	ABILENE	8	05	66	50	10%	90%	-	10,000	1			1M	-	-	
	COLORADO RIVER	AUSTIN	4	25	66	31	30%	70%	-	20,000		2		-	-	-	
	BURNETT BAY	BAYTOWN	9	11	66	31	0%	100%	-	2,000			4	1M	-	12	

REPORT OF POLLUTION CAUSED FISH KILLS

Cumulative listings of reports received as of date of listing

RIVER OR LAKE	CITY OR TOWN	DATE	CAUSE (see code pg. 13)	TYPE % GAME	TYPE % FORAGE	COMMERCIAL FISH LOSS (%)	ESTIMATED FISH KILLED	SEVERITY (1) TOTAL	(2) HEAVY	(3) MODERATE	(4) LIGHT	ESTIMATED MILES OR ACRES AFFECTED	DURATION DAY	DURATION HOUR
TEXAS - CONT.														
MOSSY MOTT CREEK	BEEVILLE	7 18 66	25	0%	100%	-	1,000		2			2M	-	1
BIG CEDAR CREEK	BRECKENRIDGE	3 16 66	25	50%	50%	-	-			3		-	-	3
COLORADO RIVER	COLORADO CITY	7 02 66	25	30%	70%	-	-	1				-	-	3
COLORADO RIVER	COLORADO CITY	7 30 66	25	30%	70%	-	-	1				-	-	3
WHITE RIV RESERVR	CROSBYTON	6 01 66	33	0%	100%	-	5,000				4	10A	14	-
BACHMAN LAKE	DALLAS	8 21 66	50	90%	10%	-	3,000			3		-	1	12
UNNAMED STREAM	DE LEON	6 09 66	50	50%	50%	-	1,000			3		-	-	-
TRINITY R-ELM FK	GAINESVILLE	4 25 66	31	5%	95%	-	5,000		2			2M	2	-
CEDAR CREEK	GREENVILLE	4 08 66	50	30%	70%	-	-				-	-	3	-
PECAN CREEK	HAMILTON	12 18 66	31	5%	95%	-	1,000	1				4M	3	-
ROGERS CREEK	HAWKINS	7 20 66	25	100%	0%	-	900		2			-	1	-
CLEAR FK BRAZOS R	HAWLEY	7 11 66	50	20%	80%	-	-	1				10M	3	-
LAKE HOUSTON	HUMBLE	8 22 66	25	95%	5%	-	50				4	-	-	-
PECOS RIVER	IMPERIAL	6 19 66	44	0%	100%	-	1,500			3		-	3	-
COW BAYOU	LEAGUE CITY	8 20 66	31	0%	100%	-	50				4	5A	-	-
CYPRESS CREEK	LONE STAR	5 01 66	26	85%	15%	-	-				-	-	1	-
CYPRESS CREEK	LONE STAR	5 14 66	26	25%	75%	-	200			3		-	1	-
LATOURNEAU LAKE	LONGVIEW	5 01 66	24	20%	80%	-	-				-	-	1	-
SABINE RIVER	MARSHALL	11 12 66	21	20%	80%	-	-				4	4M	1	-
COLONY CREEK	MARTIN VALLEY	8 27 66	25	0%	100%	-	500			3		5M	-	-
COLORADO R-STREAM	MATAGORDA	7 23 66	11	0%	100%	-	100,000				4	2M	2	-
JACKS CREEK	MEXIA	10 27 66	44	15%	85%	-	150				4	-	-	4
UNNAMED CREEK	MINERAL WELLS	6 02 66	31	10%	90%	-	500		2			3M	-	10
BANITA CREEK	NACOGDOCHES	1 01 66	28	0%	100%	-	10,000	1				-	1	-
SALT WORKS LAKE	PALESTINE	1 21 66	21	1%	99%	-	2,000				4	75A	7	-
L WICHITA R TRIB	PETROLIA	3 12 66	29	50%	50%	-	-		2			-	-	-
BIG WICHITA RIVER	PETROLIA	5 12 66	25	5%	95%	-	1,000			3		8M	7	-
LAVACA CANAL	POINT COMFORT	5 06 66	24	25%	75%	-	300				4	10A	2	-
PORT ISABEL CHANL	PORT ISABEL	6 08 66	11	0%	100%	-	-			3		-	1	-
ARROYO COLORADO	RIO HONDO	6 27 66	11	50%	50%	-	-			3		1M	2	-
UNNAMED STREAM	TEMPLE	5 12 66	28	0%	100%	-	300	1			4	2M	2	-
PRIVATE POND	TERRELL	7 22 66	11	95%	5%	-	100				4	1A	1	-
SEAWALL BAR DITCH	TEXAS CITY	10 20 66	24	5%	95%	-	-			3		-	1	-
MOSES BAYOU	TEXAS CITY	11 07 66	31	2%	98%	-	200				4	-	1	-
GALVESTON BAY	TEXAS CITY	11 25 66	27	1%	99%	-	1,000				4	-	-	-
DRAINAGE CANAL	VICTORIA	1 17 66	24	25%	75%	-	500				4	8M	4	-
VIRGINIA														
*BLUESTONE RIVER	BLUEFIELD	3 15 66	22	0%	100%	-	200				4	12M	1	-
RIVANNA RIVER	CHARLOTTESVILLE	6 29 66	50	40%	60%	-	300	1				1M	5	-
*SMITH RIVER	FIELDALE	6 23 66	28	10%	90%	-	2,000		2			2M	1	-
RAPPAHANNOCK RIV	FREDRICKSBURG	7 22 66	31	70%	30%	80%	750			3		5M	1	-
SHENANDOAH RIVER	FRONT ROYAL	7 30 66	31	92%	8%	-	12,244		2			6M	2	-
*MIDDLE RIVER	VERONA	8 23 66	31	10%	90%	-	-			3		-	-	-
WASHINGTON														
BOISE CREEK TRIB	ENUMCLAW	3 19 66	28	100%	0%	100%	10,000	1				5M	1	-
NEWAUKUM CREEK	ENUMCLAW	9 05 66	22	-	-	-	-					-	1	-
COLUMBIA RIVER	KENNEWICK	6 16 66	11	50%	50%	-	1,000			3		-	1	-
FAN LAKE	NEWPORT	7 - 66	34	100%	0%	-	-		2			-	3	-
LAWRENCE CR TRIB	ORTING	6 04 66	13	100%	0%	100%	1,000			3		1M	-	6
YAKIMA RIVER TRIB	SAWYER	2 25 66	11	0%	100%	-	-					-	-	-
THORNTON CR-TRIB	SEATTLE	11 01 66	33	100%	0%	-	500		2			1M	1	-
LIND COULEE CREEK	WARDEN	12 14 66	13	30%	70%	-	2,000				-	5M	2	-
WEST VIRGINIA														
HACKERS CR-W FORK	BERLIN	8 18 66	21	30%	70%	-	1,500	1				2M	3	-
TYGART RIVER	ELKINS	6 28 66	31	5%	95%	-	1,250				4	5M	-	10
TYGART R-MIDDLE F	ELLAMORE	5 28 66	21	30%	70%	-	1,000	1				-	-	-
CHERRY R-GAULEY R	FENWICK	8 07 66	21	20%	80%	-	300	1				1M	-	-
BUCKHANNON RIVER	HALL	7 18 66	21	40%	60%	-	500	1				3M	6	-
LAUREL FORK	JESSE	7 13 66	21	47%	53%	-	22,015		2			3M	3	-
KANAWHA RIVER	NITRO	6 11 66	20	2%	98%	-	1,350				4	2M	2	-
LITTLE KANAWHA R	PARKERSBURG	8 11 66	24	30%	70%	50%	2,000		2			1M	1	-
REEDY CREEK	REEDY	11 07 66	28	70%	30%	-	25,000		2			4M	3	-
COAL RIV-POND FK	VAN	5 10 66	21	10%	90%	-	100,000		2			15M	2	-
POCA RIVER	WALTON	9 - 66	25	30%	70%	-	-		2			15M	90	-
WISCONSIN														
BEAR & ROCK CREEK	LOYAL	9 29 66	31	40%	60%	-	300		2			1M	3	-
BUFFALO-BEEF-RIV	OSSEO TO STRUM	6 29 66	42	60%	40%	-	450	1	2			16M	2	-
PORTAGE CANAL	PORTAGE	7 06 66	28	0%	100%	-	2,000		2			1M	1	-
WYOMING														
SPRING CREEK	CHEYENNE	5 04 66	24	0%	100%	-	1,000			3		1M	-	-
LAPRELE CREEK	DOUGLAS	7 27 66	50	5%	95%	-	90,000	1				2M	2	-

* CONFIRMED BY STATE WATER CONTROL BOARD

REPORT OF FISH KILLS—CAUSE UNKNOWN

Cumulative listings of reports received as of date of listing

RIVER OR LAKE	CITY OR TOWN	DATE	CAUSE Unknown	TYPE % GAME	TYPE % FORAGE	COMMERCIAL FISH LOSS (%)	ESTIMATED FISH KILLED	SEVERITY (1) TOTAL	(2) HEAVY	(3) MODERATE	(4) LIGHT	ESTIMATED MILES OR ACRES AFFECTED	DURATION DAY	DURATION HOUR
CALIFORNIA														
LAGUNA CREEK	HERALD	8 03 66	90	75%	25%	-	150			3		-	-	-
SUISUN BAY	MARTINEZ	6 13 66	90	100%	0%	-	7				4	-	-	-
BROAD SLOUGH	SACRAMENTO	6 30 66	90	100%	0%	-	9				4	-	-	-
SAN FRANCISCO BAY	SAN FRANCISCO	5 31 66	90	0%	100%	-	7,200		2			-	-	-
HUDEMAN SLOUGH	SKAGGS ISLAND	9 16 66	90	100%	0%	-	6				4	-	-	-
SAN JOAQUIN RIVER	STOCKTON	9 14 66	90	1%	99%	-	750				4	-	-	-
PORT OF STOCKTON	STOCKTON	10 15 66	90	0%	100%	-	9,000		2			-	-	-

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